

Memorandum of Understanding

Between

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

and the

United States Department of Energy
National Energy Technology Laboratory

I. Purpose

The purpose of this Memorandum of Understanding (MOU) between the United States Department of Energy (DOE), National Energy Technology Laboratory (NETL) (hereinafter "NETL") and the Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (hereinafter "NIOSH") of the United States, is to establish a cooperative working arrangement between NETL and NIOSH in the areas of air emissions and exposure assessment.

II. Funding

All work performed by NETL and NIOSH under this MOU will be done with each organization funding its own activities.

III. Specific Projects

NETL and NIOSH have keen interest in work that is taking place in the natural gas drilling industry. NETL has ongoing research in the area of air emissions (lifecycle analysis and fugitive gas emissions). This research aligns with ongoing worker health and safety work that NIOSH is conducting in the natural gas drilling industry. By collaborating, NETL and NIOSH may be able to advance both initiatives more rapidly than could be done individually. The collaboration may involve: sharing data, coordinating access to drilling sites, identifying potential hazards, quantifying risk, and developing controls. Based on the work performed under this MOU, exposure and hazard controls (to include engineering controls, substitution, and personal protective equipment) can be proposed, developed, and evaluated for efficacy. In addition, methodologies or technologies to control emissions can be developed to help reduce emissions at the well pad. This

information will be used to inform standard setting organizations, industry safety and health professionals, and management.

IV. Intellectual Property Rights

Work conducted under the terms of this MOU may result in products or processes that are patentable. The agency whose employees' work results in the invention shall disclose the invention to the other agency and prosecute the patent application. If protection is granted, the inventing agency will manage the patent in accordance with its rules and regulations. Inventions resulting from joint work of both agencies' employees shall be handled as agreed at the time of disclosure.

V. Publication Rights

Each agency reserves the right to publish written works related to work conducted hereunder either separately or with the other agency. In the event an agency publishes separately, both agencies agree to submit a draft of any such publication to the other agency for a 30-day review period prior to release.

VI. Third Party Claims

Each agency shall be responsible for claims, losses, damages, and expenses which are proximately caused by the acts or omissions of that agency or its employees, agents or representatives acting within the scope of their employment.

VII. Communications

To provide for consistent and effective communications, the agencies have designated points of contact listed below:

NETL

Technical Contact:

George Darakos

Department of Energy

626 Cochrans Mill Road

P.O. Box 10940

Pittsburgh, PA 15236-0940

Phone: 412.386.7390

Email:

george.darakos@netl.doe.gov

Administrative Contact:

Jessica Sosenko

Department of Energy

626 Cochrans Mill Road

P.O. Box 10940

Pittsburgh, PA 15236-0940

Phone: 412.386.7417

Email:

jessica.sosenko@netl.doe.gov

NIOSH

Technical Contact:

Margaret M. Kitt

NIOSH

1600 Clifton Rd, MS E20

Atlanta, GA 30333

404-498-2500

Ajy8@cdc.gov

Administrative Contact:

Kathleen E. Goedel

NIOSH

4676 Columbia Parkway, MS C-6

Cincinnati, OH 45226

513-533-8686

keg2@cdc.gov

The points of contact shall coordinate all requests for assistance under this MOU and shall serve as the communication link between NIOSH and NETL. The technical contacts shall coordinate on matters relating to work performed under this MOU.

VIII. Entire Agreement

This MOU embodies the entire agreement between NIOSH and NETL with regard to the work described in this MOU and supersedes all other communications, either oral or written. No amendments or modifications shall be valid unless incorporated into this MOU.

IX. Effective Date, Modification, And Termination

This MOU is effective on the date affixed hereto by the agency last signing this MOU and shall remain in effect for **three (3) years** from the date of execution unless terminated in accordance with the terms set forth herein. This MOU may be modified by written agreement of the agencies. Any modifications must be signed by the NETL Director or designee and the NIOSH signatory listed below or designee. This MOU may be terminated at any time by mutual consent of the agencies. Either agency may terminate this MOU unilaterally by providing 30 calendar days written notice to the other agency.

ACCEPTANCE:

FOR NIOSH:

BY: _____

John Howard, MD
Director, NIOSH

DATE: _____

4/22/13

FOR NETL:

BY: _____

Anthony V. Cugini
Director, NETL

DATE: _____

4/22/13